

CLAIMS

What is claimed is:

1. A multiplier circuit comprising:
 - a frequency generating circuit which generates an output signal at a rate
5 that is a multiple of input frequency;
 - a phase comparator which directly compares the phase of an edge of the input signal with the phase of an edge of the output signal and controls the frequency generating circuit based on the comparison.
- 10 2. A multiplier circuit as claimed in claim 1 further comprising a window signal applied to the phase comparator, the window signal being true during edges of the input signal and output signal to be compared.
3. A multiplier as claimed in claim 2 further comprising a divider which frequency divides the output signal to provide the window signal.
- 15 4. A multiplier circuit as claimed in claim 3 wherein the frequency generating circuit is a voltage-controlled oscillator.
5. A multiplier circuit as claimed in claim 1 wherein the frequency generating circuit is a voltage-controlled oscillator.
6. A method of frequency multiplying comprising:
 - 20 generating an output signal at a rate that is a multiple of an input signal;
 - and

directly comparing the phase of an edge of the input signal with the phase of an edge of the output signal and controlling the frequency of the output signal based on the comparison.

7. The method as claimed in claim 6 further comprising applying a window signal to a phase comparator which compares the phase.
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8. A method as claimed in claim 7 further comprising dividing the output signal to provide the window signal.
9. A method as claimed in claim 8 wherein the output signal is generated in a voltage controlled oscillator.
10. A method as claimed in claim 6 wherein the output signal is generated in a voltage controlled oscillator.
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